

627,512 Warner OCT 16 1914
A Practical Plant of Proven Economy

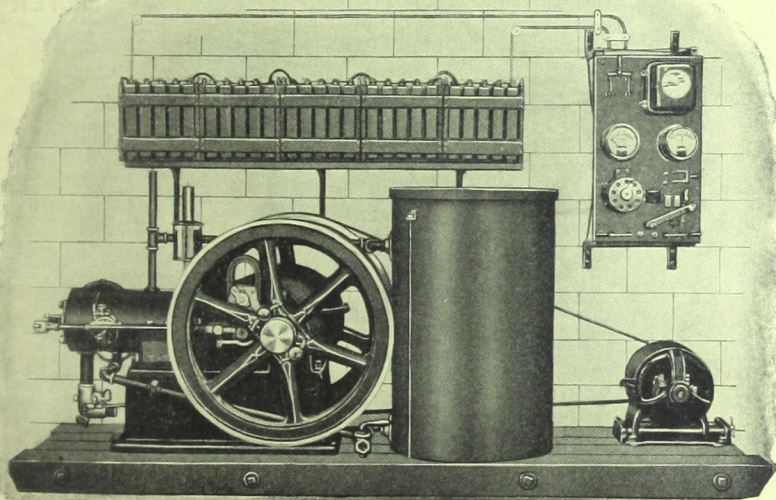
The
New Warner Special

Automatic Electric Light Plant

Most Efficient

Most Durable

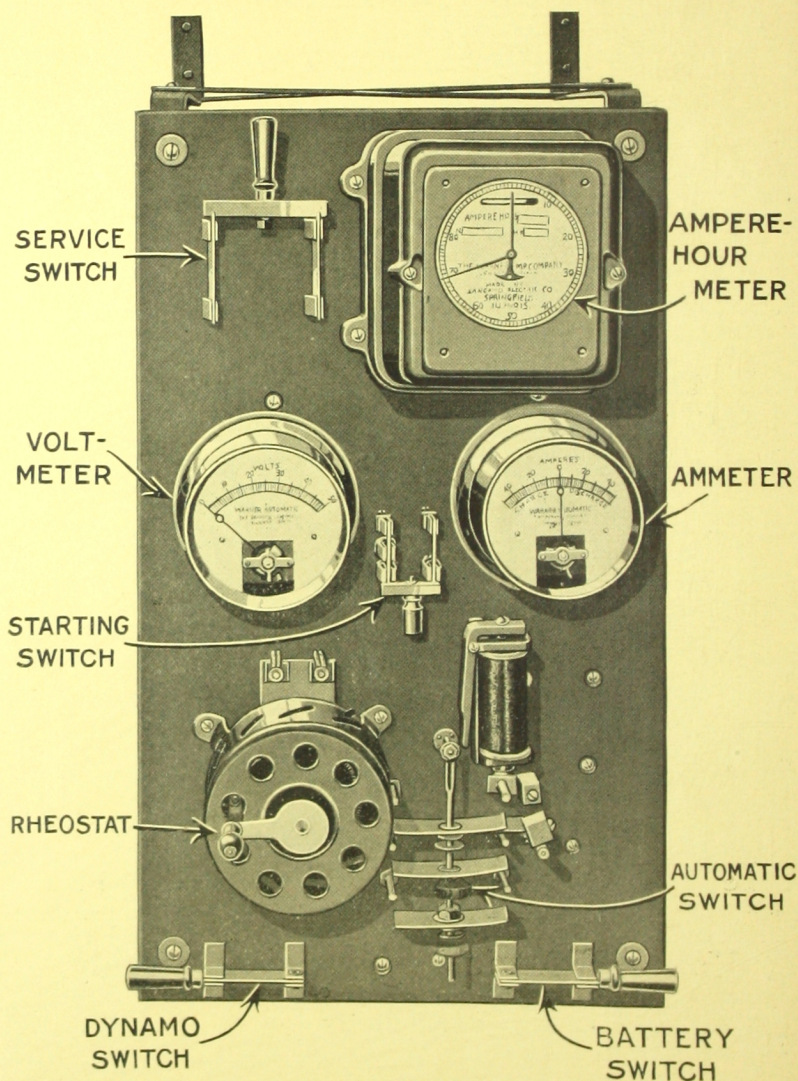
Most Reliable
Warner Lamp Co



The World's Greatest Individual Electric Light Plant

Makes Electric Light for Everybody

For Sale by



TYPE S SWITCHBOARD

DESCRIPTION OF THE NEW WARNER SPECIAL

The Plant of Lasting Quality

THE ENGINE THE HEART OF A LIGHTING PLANT

The man who thinks that any sort of an engine will do for an electric light plant has a surprise coming that will be filled with grief. The engine should be a four cycle, volume governed type—the “hit and miss” governed engine is not fit for producing electric light. Another important requirement is that the engine have a “built in magneto” for furnishing the ignition current. Batteries for sparking an engine will soon get you into trouble on an electric light engine. The engine we use with The Warner Automatic Electric Light Plant is perfectly adapted for this kind of work. It is a high class, four cycle, volume governed, engine, with built in magneto and has large water tank which insures a cool running engine even with heavy overloads for long periods. A better engine could not be made at any price. The small sizes run on gasoline and the larger sizes run on crude oil or in fact any kind of oil that flows. **Our engines are easy starters**—run smooth and are noted for their high efficiency (low fuel consumption).

The Engine is Electrically Controlled

The Dynamo cranks the engine in starting. An ingenious device is provided to remove the compression as an aid to the dynamo at the start, and the cylinder lubricator is automatically turned on and off with the starting and stopping of the engine. The failure of the operator to start the cylinder lubricator has ruined many engines, and the loss of oil as a result of the operator's forgetting to shut off the lubricator when he stops the engine is great, but no greater than other complications which result from the same cause. With our **automatic lubricator control** there is no forgetting. The electric current from the magneto to the igniter is automatically controlled by the switchboard.

Our Special Shunt Wound Dynamo

To most people all dynamos look alike, and true they all operate on the same principle, yet they differ greatly in essential details. We have tried out practically every standard make of electric machines and have embodied in our New Special Shunt Wound Dynamo the good features of all other makes and have eliminated all of their weak points. To show how we have mastered details, we will just mention one instance. Ten

10 41-12720 104

different operations are necessary every time the belt is adjusted on other machines—only one is necessary with ours. On our dynamo there are only two bearings to be lubricated and these are self oiling. The commutator is made of pure copper. The brushes are self lubricating. A valuable feature of our dynamo is the special shunt winding which adapts it to the "dual service" of both motor and dynamo. It first acts as a powerful motor cranking the engine when the plant is started and it automatically becomes a dynamo (a generator of electricity) when the engine becomes operative.

All Batteries Shipped Fully Charged

We can furnish you any standard type battery you want, enclosed in hard rubber cells, sealed-in glass cells, or the Edison battery. The price is different on each. Some people prefer the enclosed type battery, others the sealed type glass cell battery, and we are prepared to furnish them when specified. They are slightly more expensive than the "enclosed type," but have some advantages in their favor. The elements are visible through the glass and some important conditions of operation can be observed at a glance. The solution can be maintained at the proper level with greater accuracy and less effort than with the "enclosed type." Some people prefer the new Edison Batteries, and although they cost much more (about five times) than the lead batteries, yet it is possible they may be cheaper in the end. They are said to hold up well under abuse and neglect, and if properly cared for, will last a "life time." Some sort of storage battery is absolutely necessary in connection with individual lighting plants.. So we offer you choice of the "Enclosed Type," the "Sealed Glass Type," or the "Edison Nickel-Steel Type." The supposition is you will get all you pay for in either case.

Our New 1914 Automatic Switchboard

Is perfect in every detail. Not an untried idea, but the natural product of evolution. It is the visualization of years of experience of building and operating thousands of lighting plants, large and small—automatic and non-automatic. It has on it every instrument actually necessary to the successful operation of a lighting plant and yet not a single piece that is **ambiguous** or unnecessary. An important feature is the automatic switch. Merely raising this switch by hand closes the ignition circuit, turns on the oil, and relieves the compression so that the dynamo can more easily crank the engine to start the plant. After that, every action is automatic.

How We Secure Perfect Control

The great problem with a storage battery plant is to determine the condition of the charge of the battery at all times. There are three methods of trying to arrive at the proper solution of this puzzle. One is by testing the voltage of the cells—another by testing the density of

the battery solution. There are numerous variable conditions which constantly affect a battery that at once makes either of the two methods described very unreliable as a means of diagnosing the condition of charge in a storage battery even under the eye of an experienced Storage Battery expert.

The Ampere-Hour Meter the Missing Link

The third and only correct method of accurately determining the condition of charge in a storage battery of every type is the Ampere-Hour Meter, an instrument for measuring and recording the ampere flow of electric current by hours. It operates similar to the watt-meter, which is universally used to measure electricity. It has a round dial, with a single hand pointing to figures on the outer edge of the dial. Anyone can easily and correctly read the Ampere-Hour Meter because the hand is moved in one direction when the battery is being charged, and in the opposite direction when discharged, so that the position of the hand on the dial indicates the true condition of the battery with reference to charge. When the battery is fully charged the hand on the meter closes an electric circuit which controls the automatic switch and immediately stops the plant. A movable contact is provided which may be set at any point on the dial so that when the hand strikes it, an alarm is given indicating that the batteries are discharged to the point at which contact is located. (We usually set this contact to close when battery is three-fourths discharged.) The alarm may be either the ringing of a bell or flashing of a light at some distant point.

Batteries Fully Protected at All Times

The Automatic Switch will absolutely stop the engine and protect the batteries if anything goes wrong. If the gasoline runs out—or the ignition system gets out of “kelter”—if the engine runs out of oil and gets hot—the belt runs off, or anything that upsets the normal running condition of the plant,—it will result in the Automatic Switch protecting the batteries by shutting them off and stopping the engine. This feature alone is invaluable but remember the other refinements, especially the Ampere-Hour Meter which shows at all times the exact condition of the battery with respect to charge; that is, the amount of electricity taken out and the useful amount remaining. The batteries will last longer because the Meter acts as an unfailing “watch-dog” not only automatically giving the batteries the necessary periodical overcharge to keep them in a healthy condition, but prevents complete discharge and sulphation; besides think of the satisfaction of having before you a positive, visual gauge of the battery charge at all times.

Our New Warner Special Not Only Best But Cheapest

Whether measured by the rule of service or compared by any other true method, The Warner Special will prove not only the best but likewise the cheapest individual electric lighting plant ever placed on the

market. It is regularly made in all standard sizes and in all standard voltages.

The Modern Farmer Needs Electric Light

Make the home attractive by the liberal use of electricity and you have solved the problem of how to keep the boys and girls on the farm and away from the evil influences of the city.

We are just beginning to appreciate the many uses and conveniences of electricity. Electric light, of course, comes first. It is so cheap, safe and convenient that there is no need of having dark closets, dark cellars, barns and other dark places about the home.

Electricity in the Home

May be used to wash the clothes, iron, sew, run the vacuum cleaner, the electric fan, separate the cream, churn, **pump all the water**, make ice cream, grind meat, heat water, cool the refrigerator, mix bread, make coffee, and provides the most practical and inexpensive method of cooking.

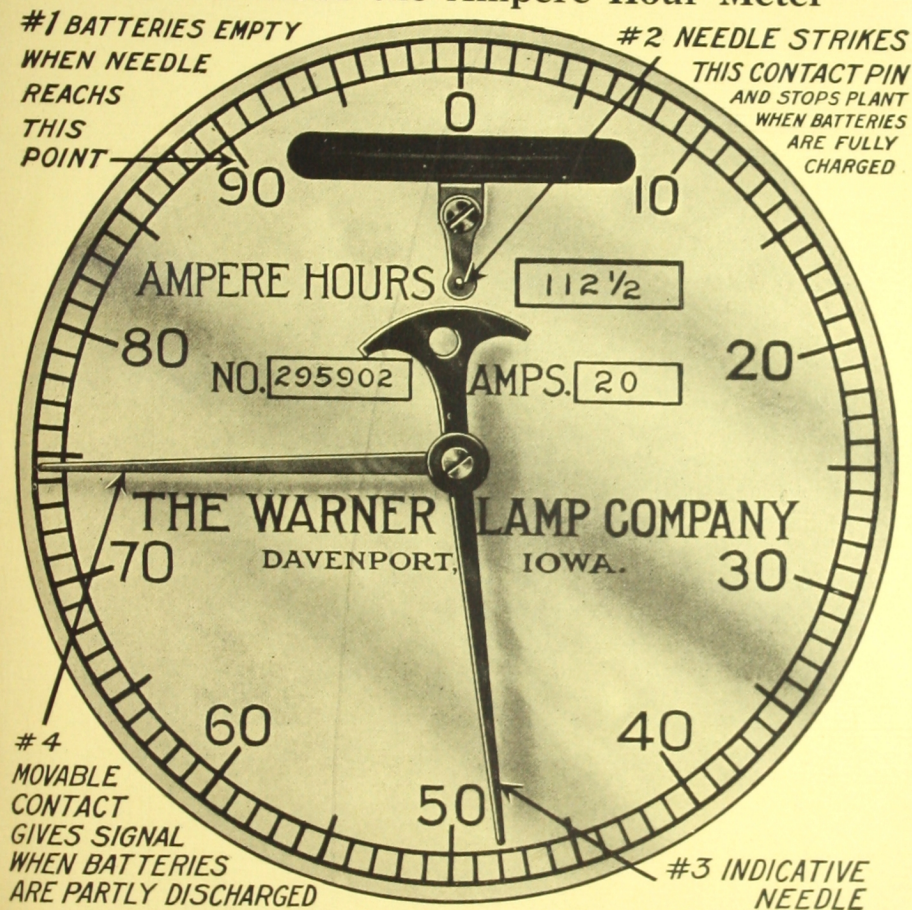
Electricity on the Farm

May be used to shell corn, cut feed, elevate grain, **pump all the water**, saw wood, sharpen tools, charge the sparker batteries for the automobile and do numerous other hard jobs. The cost of a Warner Special Automatic Electric Light and Power Plant is not an expense but **the very best kind of an investment**. The farmer no longer considers the mower, the reaper, the binder, the thresher, the hay loader and all other modern appliances for farming an item of expense. He rightly regards them as a mighty good investment, if not an absolute necessity, and the time is rapidly coming, if not already here, when electricity on the farm will take its rightful place and the farmer will actually wonder how he ever got along without it.

For prices and further particulars, call on your nearest Warner Dealer.

THE WARNER LAMP COMPANY
Davenport, Iowa, U. S. A.

How to Read the Ampere Hour Meter



The above cut shows the dial of the meter

1. Shows the discharged point of the batteries. When the indicating needle gets to this point the batteries are exhausted.
2. Shows the pin against which the indicating needle strikes when the batteries are fully charged. This results in stopping the plant.

3. Shows the indicating needle.

4. Shows the red movable contact, which may be moved to any position on the dial, and when the "indicating needle" passes over it a circuit is closed which rings a bell.

NOTICE that the indicating needle moves from 0 to 90 as the batteries discharge, and in the opposite direction as they charge. Therefore, when the needle stands at $22\frac{1}{2}$ the batteries are one-fourth discharged, or three-fourths charged. When it reaches 45 they are one-half discharged or one-half charged and when at $70\frac{1}{2}$ they are three-fourths discharged or one-fourth charged, and when at 90 they are fully discharged. It is not good for any battery to discharge it entirely; in fact, it should never be discharged lower than necessary. If they are charged up full every day they will last twice as long.

